Combined Design Report

FAP Route 303 (IL 173)
Section 129R
Winnebago County
P-92-007-93
Contract No. 64988

May, 2007

Illinois Department of Transportation
Division of Highways / District 2
819 Depot Avenue / Dixon, Illinois / 61021-3500

FEDERAL AID PRIMARY ROUTE 303 (IL 173)
FROM WEST OF IL RTE 251 TO BELVIDERE/ARGYLE ROAD WITH AN OMISSION
AT THE I-90 INTERCHANGE IN WINNEBAGO COUNTY

FINAL DESIGN REPORT

Prepared by
The Illinois Department of Transportation

May 2007

The proposed action is the reconstruction of IL Route 173 from a 2-lane to a 4-lane facility with a raised median, dual left turn lanes, concrete curb & gutter throughout, intersection improvements, and vertical realignment from just west of IL Route 251 to just west of I-90 and from Lyford Road, east of I-90 to just east of Belvidere/Argyle Road.

This Design Report addresses the no-action alternative and the option of improving and adding lanes to the existing facility.

An Environmental Assessment has been prepared and approved in conjunction with this Design Report and assesses the potential social, economic, and environmental effects of the various alternatives. The recommended alternative for construction is a 4-lane facility within the existing corridor.

Design Approval Eric E Harm RS — Bureau of Design & Environment

5-29-07 — Date

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I. INTRODUCTION

A. Description and Location of Project

The project is located northeast of Rockford, east of the Rock River and centered on the communities of Machesney Park and Loves Park. Both IL 251, a multi-lane limited access roadway generally following the river north-south and IL 173 are marked State Highways classified as Principle Arterials. The Illinois Department of Transportation (IDOT) proposes to reconstruct and widen, on existing alignment, 6.4 miles of two-lane Illinois Route 173 (IL 173) from the logical termini, Illinois Route 251 (IL 251) to Belvidere Road (Figure 1). IL 173 turns into Latham Road, a county highway, west of IL 251 and crosses the Rock River and intersects IL 2. Included is partial realignment of an adjacent creek. The proposed project would provide a four-lane urban/rural limited access roadway with raised concrete median, curb and gutter and storm sewer system and intersection improvements with turning lanes and signalization.

B. History of Project

IL Route 173 was originally built in 1931 and is part of the National Highway System. Both an interchange at I-90 and the widening of IL 173 have been proposed in numerous local and regional corridor studies and plans since 1981. The proposed project will provide an interconnected system of arterial routes in a rapidly developing area and will alleviate traffic congestion and improve the safety of operating conditions. By regulating the spacing of intersections and providing adequate turning lanes and traffic controls, the improvements will protect and enhance the capacity of the IL 173 roadway. These are among the objectives of the IL 173 Access Plan developed by IDOT with RATS in 1994 in anticipation of the development along this route approved by the State, Winnebago County, Village of Machesney Park, City of Loves Park, and the City of Rockford. Updated in 2000, the IL Route 173 Access Plan has been reaffirmed by the RATS Policy Committee in 2005. The Access Plan is included as Figure 24 in the Appendix.

C. Design Criteria Used

IL Route 173 is a two lane facility that is overburdened with the existing traffic. With the additional traffic volume generated by the rapidly developing corridor and the proposed I-90 interchange, users will experience severe congestion with stop and go traffic and a noticeable jump in accident frequency if the two lanes are left in place. The need for additional lanes, complete intersection improvements and the motorist's safety drives the decision to use IDOT's Reconstruct policy in lieu of a downscaled 3R design policy. Due to the large number of design exceptions from accepted highway engineering practices that would have to be approved by the FHWA, the conservative 3R policy would not be a realistic solution. The guidelines within the Reconstruct policy better suit the needs of the motoring public in terms of capacity and safety.

II. PURPOSE AND NEED FOR THE IMPROVEMENT

A. Corridor Purposes/Needs

As a major through route at the urbanizing northern edge of the greater Rockford area, IL 173 increasingly serves not only regional traffic but trips between newly developed commercial, retail, and entertainment destinations within the corridor. This project will fulfill seven identified purposes and/or needs of the transportation system, the community, and the roadway facility:

1. Achieves additional interconnection between routes on the National Highway System
2. Improves public access to Rock Cut State Park, a regional recreation destination
3. Improves access to Metro commuter rail in Harvard, east via IL 173
4. Improves access to the region's Illinois National Guard 244th Army Liaison Team, west via IL 173
5. Resolves capacity and safety deficiencies of existing two-lane IL 173
6. Corrects IL 173 poor underlying pavement condition
7. Implements IL 173 recommendations in adopted local and regional plans

B. Conditions of Existing IL 173

1. Existing Typical Section

Illinois Route 173 is functionally classified as an Other Principle Arterial and consists of two, 12' lanes constructed with 9" of concrete with an average overlay thickness of 5-3/8". The aggregate shoulders are 2' and variable in width and open ditches convey stormwater through the corridor. See Existing and Proposed Typical Sections, Figure 8.

2. Access Control

The IL 173 Access Plan was developed by IDOT with RATS in 1994 in anticipation of the development along this route and was approved by the State, Winnebago County, Village of Machesney Park, City of Loves Park, and the City of Rockford. The Access Plans were updated in 2000 and reaffirmed by the RATS Policy Committee in 2005.

The Access Plan acknowledges the rapid growth along the corridor and incorporates appropriate points of access, both full and partial, as recommended in the BDE Manual. The RATS Committee has embraced this plan and realizes that it is the key to keep traffic moving, which will entice more development. The Villages and Cities are desirous of having the developers share in the costs of an off system roadway network for circulation between access points. See Figure 24 of the Appendix for the IL 173 Access Plan.

C. Existing Traffic and Capacity Deficiencies

The IL 173 corridor between I-90 and IL 251 is experiencing rapid commercial and residential development, with an escalating need for additional roadway capacity and

connections. By 2025, without the I-90 interchange, average daily traffic volumes on IL 173 at the I-90 underpass are projected to more than triple and to increase over 60% near IL 251. On IL 173 at I-90, existing Level of Service (LOS) is less than LOS B. The IL 173 existing LOS at IL 251 is E. The existing two-lane cross-section is inadequate to serve the 2025 projected peak hour traffic. At least four lanes, two in each direction, will be required to attain the required LOS C. At the west end of the project, existing LOS on IL 251 is E. With the existing configuration, IL 251's average daily traffic is projected to increase almost 50% by 2025, with a reduction in service to LOS F. See the Intersection Design Studies in Figure 4 of the Appendix for LOS and traffic details.

Table 1. Current and Design Year Average Daily Traffic

Roadway/Direction	Location	Base Year Traffic ADT (Year)	Design Year Traffic ADT without I-90 Interchange (Year)	Design Year Traffic ADT With I-90 Interchange (Year)
IL 251 NB	IL 173 intersection	21,000 (2005)	30,850 (2025)	27,150 (2025)
IL 251 SB	IL 173 intersection	19,600 (2005)	29,550 (2025)	25,400 (2025)
IL 173	IL 251 intersection	21,400 (2005)	34,900 (2025)	38,550 (2025)
IL 173 EB & WB	I-90 underpass	6,350 (2005)	21,440 (2025)	36,950 (2025)

Table 2. Current and Design Year Peak Hour Traffic

Roadway/ Direction	Location	Base Year Peak Hour traffic vph (Year)	Design Year (2025) Peak Hour Traffic vph without Interchange	Design Year (2025) Peak Hour Traffic vph With Interchange
IL 251/ Northbound*	North of IL 173	1495 (2005)	1650	1430
	South of IL 173	1360 (2005)	1560	1345
IL 251/ Southbound*	North of IL 173	1954 (2005)	1650	1430
	South of IL 173	1360 (2005)	1560	1345
IL 173/ Eastbound*	West of IL 251	655 (2005)	1460	1480
	East of IL 251	1175 (2005)	640	1955
IL 173/ Westbound*	West of IL 251	655 (2005)	1544	1480
	East of IL 251	1175 (2005)	1460	1955
IL 173/ Eastbound◊	West of I-90	487 (2005)	1160	2248
	East of I-90	487 (2005)	1160	1398
IL 173/ Westbound◊	West of I-90	386 (2005)	895	1488
	East of I-90	386 (2005)	895	1149
	South of IL 173	2121 (2005)	3768	4303
	South of IL 173	1892 (2005)	2892	3272

Sources: * IDOT District 2
◊ RATS

D. Crash Information

During 2000, 2001 and 2002, IL 173 had 458 accidents with 218 injuries. Five intersections along IL 173 were identified as high accident locations: IL 251, Orlando Street, Alpine Road, Forest Hills Road and Belvidere Road. The majority of the accidents consists of turning, angle and rear-end collisions. See the Accident Analysis, Figure 9.

E. Alignment and Profile Deficiencies

The existing horizontal and vertical curvature are adequate for the posted speeds. The high accident locations and the unacceptable level of service are driving the need for this project.

III. EXISTING SOCIAL, ECONOMIC AND ENVIRONMENTAL CONDITIONS

A. Description of Project Area

The project area can be described as an urban and rural corridor that is rapidly being converted to closed suburban. The existing and proposed developments along IL 173 in addition to the proposed I-90 interchange are generating high volumes of traffic which the existing facility is unable to handle. The anticipated increase in traffic is drawing more developments which are changing the usage of the adjacent land from agriculture in the rural areas to suburban development to match the already developed urban areas. The existing project area can be seen in the aerial mosaics contained in Figure 2 of the Appendix.

B. Project Limits

The 6.4 mile project area extends from 0.643 miles west of IL 251 (west of Gentian Drive) to 0.25 miles east of Belvidere Road (Figure 1). Although included within the same Environmental Assessment, the interchange at I-90 and IL 173 has been omitted from this Combined Report and is a separate document. Jurisdictions along the project corridor include the Village of Machesney Park, the City of Loves Park, unincorporated Winnebago County and unincorporated Boone County. The Village of Roscoe is 1.5 miles to the north. Rock Cut State Park, within the corporate limits of Loves Park, is a dominant feature in the corridor, with its northern boundary extending more than two miles along IL 173 between Perryville Road and I-90.

C. Land Use

The major types of existing land use through the IL 173 corridor include commercial, residential, park, agricultural, and vacant/undeveloped, the latter category including properties known to be in ownership transition, with development plans submitted and in various stages of approval. Initial development of big box stores is being followed, as planned, with out-lot development for retail, financial, restaurant, and other uses. Within Loves Park on the south side of IL 173, a new 28-acre retail center will be developed east of the Rockford Speedway. The Machesney Park 2003 Gateway Conceptual Plan shows all properties in commercial development for 1.5 miles along both sides of IL 173.

Land use adjacent to IL 173 is characterized by urban development at the west end and agricultural in the eastern sections, with land north of the park in the center section now undergoing transformation from agricultural to residential, with commercial planned. Through some areas of the existing two-lane roadway, trees and woody shrubs form a strong part of the visual environment, and add to habitat opportunities for wildlife in the developed as well as the farmed areas. Woody vegetation occurring along the IL 173 corridor is of two origins: landscape plantings as part of established farmsteads or some newer developments, and volunteer growth, self-seeded.

D. Regional Planning

As a local development mechanism, the Village of Machesney Park in 1991 established a tax increment finance (TIF) district of approximately 70 acres centered on the IL 173/IL 251 intersection. The village continues to purchase and assemble small parcels into

large tracts for commercial development. The northeast and southeast quadrants are under development by local developers for retail and commercial development.

Farms across IL 173 from Rock Cut State Park and farms on the east side of I-90 were annexed by Machesney Park and Loves Park in 1996 and 1997 with the provision that they could be developed as commercial properties. The 2003 Machesney Park Gateway District Plan designates future land use across from the park as a mix of residential and "State Park Related Development" such as commercial/retail and hotel/office uses. Developers in 2004 and 2005 purchased all the private properties between Forest Hills Road and I-90 except the farm in the northwest quadrant of IL 173 and I-90.

Conversion to commercial and office type land uses has been predicted for this corridor in planning documents for over 20 years. The 1997 Loves Park Comprehensive Plan's Future Land Use plan shows general commercial and industrial/business park/quarries land uses adjacent to IL 173. Winnebago County's Year 2010 Future Land Use Guide produced in 1996 shows commercial retail development across IL 173 from Rock Cut Park. As the area's Metropolitan Planning Agency, RATS has recommended these corridor improvements in its Long-Range Transportation Plan. Boundary agreements between the Village of Machesney Park, City of Loves Park, and Village of Roscoe confirm that, eastward to Boone County, Machesney Park intends to annex unincorporated land to the north of IL 173 and Loves Park intends to annex unincorporated land south of IL 173.

No existing residential neighborhoods exist on IL 173 east of IL 251. New single-family residential enclaves are currently being constructed north of IL 173 with access via Mitchell Road. Five residential subdivisions in the IL 173 corridor are in various stages of approval by the Village of Machesney Park, most along Mitchell Road and an extension of Perryville Road. As of June 30, 2004, Machesney Park had approved 651 single-family and 42 multi-family tentative plats along the IL 173 corridor, 303 single-family and 37 multi-family final plats, and issued building permits for 149 single-family and three multi-family buildings.

Along both sides of Mitchell Road north of Rock Cut State Park, hilly terrain once maintained in conservation plantings or pasture now supports the development of condos and single-family homes. Extensive housing, retail establishments and restaurants are being built with access from the extension of Perryville Road. A multiplex theatre in this same area opened in May 2005. Through the project area, agriculture is no longer the most remunerative use of land, nor is it the anticipated future.

Recent planning by both Machesney Park and Winnebago County shows urban development extending eastward to I-90. While the county's plan indicates agricultural use remaining on lands east of I-90, the more ambitious Comprehensive Plan of Loves Park shows future commercial development in the immediate vicinity of the proposed interchange, with housing to the east. This potential growth area of present-day farmland was the subject of a boundary agreement negotiated in 2002 between Loves Park, Machesney Park, and the Village of Roscoe, to clarify and confirm their respective territorial claims.

E. Sensitive Environmental Areas

1. Parks and Recreational Areas

Records show that Land and Water Conservation (LAWCON) funds were used to purchase a portion of Rock Cut State Park, bringing this property under the provisions of Section 6(f). However, there is no project action proposed that would convert Park property to highway use. The Illinois Department of Natural Resources has requested that IDOT build a bicycle trail across and within the Park, and this request for assistance does not make applicable the provisions of Section 6(f).

2. Agricultural Resources

Agriculture remains of importance in the economy of Winnebago County, and is a significant land use county-wide. Over the past few decades the amount of farmland has been declining. The IL 173 project area is beginning to see changes that will continue the decline.

Through the eastern part of the project area, row crop agriculture is the predominant land use. However, the land use designation VACANT has been used to acknowledge known changes in ownership that foreshadow the end of cultivation and the beginning of urban development. There are no protected agricultural areas within the project corridor.

All possible care has been given to minimize the need for right-of-way acquisition from all types of land use. Removal of land from agricultural production will, however, be among the unavoidable consequences of right-of-way acquisition to implement the Build Alternatives.

3. Cultural Resources

The survey of the area for Cultural Resources, Archaeological survey, resulted in the location of three sites: a late historic scatter, a light lithic surface scatter, and a pre-civil war historic component.

There are no historic bridges in the project corridor. There are no districts or buildings listed in the National Register of Historic Places or designated by local ordinances.

Four buildings over 50 years old, in three locations, were photographed and submitted to the Cultural Resources Unit for review. A potentially historic building and a potentially historic barn have been identified in the project limits. The Cultural Resource Clearance can be viewed as Figure 14 in the Appendix.

4. Biological Resources

The Biological Resources Review for this project was concluded February 17, 2005, with the Illinois Department of Natural Resources (IDNR) concurrence. It was determined that the project area includes no suitable habitat for any of the Federally threatened or endangered species listed as occurring in US Fish and Wildlife Service Region 3. The Illinois Endangered Species Protection Board lists a number of species occurring in Winnebago and adjacent counties, including several directly south of the project area within Rock Cut State Park. They were found to be outside of the project area and

would not be impacted. It was concluded that no suitable habitat for other State-listed species exists elsewhere in the project area. The Biological Resource Clearance can be viewed as Figure 16 in the Appendix.

5. Water Resources/Water Quality

Two surface streams flowing westward to the Rock River drain the larger project area: McDonalds Creek to the north of IL 173, and Willow Creek to the south. The USGS depicts one Unnamed Tributary to McDonald Creek as having permanent flow in the area, and two Unnamed Tributaries to Willow Creek as having intermittent flow.

The Unnamed Tributary to McDonald Creek originates near the Boone County line north of IL 173, and flows northwest to join McDonald Creek just north of the Swanson Road/McDonald Road intersection. The upstream watershed of the Unnamed Tributary to McDonald Creek has a woody riparian corridor. A part of the IL 173 project area surrounding the Belvidere Road intersection drains into the watershed of this Unnamed Tributary to McDonald Creek.

Most of the project area lies in the watershed of the more northern of the two Unnamed Tributaries to Willow Creek. This intermittent stream, with a watershed still primarily agricultural, originates in the northeast quadrant of the proposed interchange, passes under I-90 embankment in a 72 inch culvert, and meanders westward on the north side of IL 173. In the vicinity of Forest Hills Road, the creek swings north, then back westward through a developed retail commercial area, and back south through increasingly engineered channel to pass under Alpine Road, Orlando Street, IL 173, and IL 251, and join Willow Creek east of its confluence with the Rock River.

6. Geological Resources

Soil mapping for the project area shows two distinct types of soil formed over different parent materials on different landscapes in glaciated terrain. Soils along approximately one third of the project length from the western terminus to Forest Hills Road are mapped as part of the Flagler-Warsaw-Hononegah association, described as "deep, well-drained, gently sloping soils formed in glacial till or in thin loess and the underlying glacial drift, on uplands." Eastward to the project terminus, soils along the route are those of the Griswold-Winnebago association, described as "deep, well-drained to excessively drained nearly level to sloping soils that formed in loamy and sandy sediment underlain by sandy and gravelly sediment, on high stream terraces." All of these are categorized as prime farmland.

7. Special Waste

A Preliminary Environmental Site Assessment (PESA) for the project area was conducted and documented by the Illinois State Geological Survey (ISGS) which was based on historical and geological information, on-site investigation and findings from earlier studies. The PESA identified, located and evaluated special waste sites and potential hazards including underground storage tanks, leaking underground storage tanks, above ground storage tanks, sites with heavy metal contamination, a natural gas pipeline and structures to be acquired which are over 50 years old that have possible asbestos containing materials. The PESA located ten areas, regarded as "Regulated Substance Present", to be taken into account for the project design, right-of-way

acquisition, and construction. The PESA also stated that "Evidence from aerial photographs and city directories indicates that some buildings along the project ROW were constructed before 1979 and may therefore contain friable asbestos-containing materials as a component of floor tiles, wall and pipe insulation, roof materials, patching or painting compounds, ceiling materials, or stove and furnace insulation".

8. Noise Analysis

This corridor is rapidly developing into commercial, retail and other business that anticipates a positive benefit from closeness to the road. Unlike houses that are typically selected for the study because of their vulnerability to traffic noise, these building types and their patterns of occupancy at the same locations will not be sensitive to the noise which future traffic brings. Several houses were selected as analysis sites but have since been razed for developments.

Of the eleven receptor sites evaluated for noise effects of the proposed IL 173 roadway improvements, the Rock Cut State Park site would be the only one to be considered impacted by the project. Sites were included within Rock Cut State Park to provide a measure of noise levels currently being experienced from existing traffic, and to provide an indication of future noise levels as a basis for planning of Park uses that may be sensitive to noise.

Construction noise will be experienced through the entire length of the IL 173 project as it will be constructed under traffic. The major elements of the project are expected to be earth removal, hauling, grading, and paving. Depending on the proximity of the construction activity, some areas will experience greater impact than others. However, construction noise will be temporary.

9. Air Quality

The National Ambient Air Quality Standards (NAAQS), established by the U.S. Environmental Protection Agency, set maximum allowable concentration limits for six criteria air pollutants. Areas in which air pollution levels persistently exceed the NAAQS may be designated as "nonattainment." States in which a nonattainment area is located must develop and implement a State Implementation Plan (SIP) containing policies and regulations that will bring about attainment of the NAAQS. All areas of Illinois currently are in attainment of the standards for four of the six criteria pollutants: carbon monoxide, nitrogen dioxide, sulfur dioxide, and lead.

No portion of this project is located within a designated non-attainment area or maintenance area.

10. Floodplains

There are no FEMA Q3 floodplains or 1995 Unincorporated Area floodways in the project area. The nearest floodways are along Willow Creek inside Rock Cut State Park and along McDonald Creek to the north of the project area. Neither of the two Unnamed Tributaries to Willow Creek nor the Unnamed Tributary to McDonald Creek in the project area is to be included in these flood zones.

11. Wetlands

A wetland inventory of the project area was conducted by the Illinois Natural History Survey (INHS) on May 19 and 20, 2004. All potential wetlands within the area were examined, and routine on-site wetland determinations were performed at 19 locations. Eleven of these sites were determined to be wetlands, meeting the regulatory criteria of wetland soil, wetland vegetation, and wetland hydrology.

Comparison with proposed engineering designs for the widening of IL 173 roadway and for the IL 173 interchange with I-90 established that three of the eleven identified wetlands were within the area to be affected by the project as proposed.

Subsequent jurisdictional review by the IDNR under the Interagency Wetland Policy Act of 1989, determined one of these not to be a State jurisdictional wetland. A second site, a former quarry modified since the date of the INHS inventory was presented to IDNR who determined that this site would not be considered a State jurisdictional wetland since any functional wetland characteristics had been eliminated.

IV. ALTERNATIVES CONSIDERED

A. Transportation Demand Strategies

Strategic planning of traffic demands for the project area has been done by local planning organizations. The IL 173 corridor has been in the RATS Long Range Transportation Plan and is included in the current Transportation Improvement Program (TIP). RATS have performed the modeling of the future surrounding land use to assist the DOT in determining traffic volumes that were used in this study.

B. Proposed Highway Design Guidelines

Reconstruction policy from the Bureau of Design and Environment Manual 2002 was used to determine all of the design guidelines. The BDE Manual 2002 incorporates Federal guidelines as well AASHTO guidelines. The following table is the geometric design criteria for urban expressways from the BDE Manual 2002:

45-4 (6)

	Design Element				Manual Section	Construction (Ex-6) One-Way DHV: 3850 (1)	Reconstruction (Ex-6) One-Way DHV: 2850 (1)	Reconstruction (Ex-4) One-Way DHV: 1900 (1)
Design Controls	Design Forecast Year				31-4.02	20 Years	20 Years	20 Years
	*Design Speed				31-2	Minimum 60 mph (2)	Minimum 50 mph	Minimum 50 mph
	Access Control				35-1	Full Control (3a)	Partial Control (3b)	Partial Control (3b)
	Level of Service				31-4.04	C	C	C
Cross Section Elements	*Traveled Way Width				34-2.01	2 @ 36'	2 @ 36' (4a)	2 @ 24' (4b)
	Shoulder Width	Right	Total Width		34-2.02	10'	10'	10'
			Paved			10'	10'	10'
		Left	Total Width			10'	10'	6'
			Paved			10'	10'	4'
	Auxiliary Lanes	Lane Width			34-2.03	12'	12'	12'
		Shoulder Width				4'	4'	4'
	Cross Slope	*Travel Lane (5a)			34-2.01	3/16"/ft for lanes adjacent to crown	3/16"/ft for lanes adjacent to crown (5b)	3/16"/ft for lanes adjacent to crown (5b)
		Shoulder			34-2.02	1/2"/ft	1/2"/ft to 3/4"/ft	1/2"/ft to 3/4"/ft
	Median Width	Depressed			34-3	Minimum: 52' (6a)	(6b)	Minimum: 44' (6c)
		Flush (Concrete Barrier) (7a)				22'	22' (7b)	22' (7b)
		Raised Curb			45-2.06	N/A	22' - 30' (8)	22' - 30' (8)
	Clear Zone				35-3	(9)	(9)	(9)
Roadway Slopes	Side Slopes	Cut Section	Front Slope		34-4.03	1V:6H	1V:4H	1V:4H
			Ditch Width (10)			4'	4'	4'
			Back Slope (11)			1V:3H	1V:3H	1V:3H
		Cut Section (Curbed)			34-4.04	1V:20H for 10': 1V:4H to Toe of Slope	1V:20H for 10': 1V:4H to Toe of Slope	1V:20H for 10': 1V:4H to Toe of Slope
		Rock Cut			34-4.05	---	---	---
		Fill Section (12)			34-4.02	1V:6H to Clear Zone; 1V:3H Max. to Toe of Slope	1V:6H to Clear Zone; 1V:3H Max. to Toe of Slope	1V:6H to Clear Zone; 1V:3H Max. to Toe of Slope
	Median Slopes	Depressed			34-3	1V:6H	1/2"/ft (Rush)	1V:6H
		Raised Curb			45-2.06	N/A	3/16"/ft	3/16"/ft
Bridges	New and Reconstructed Bridges	*Structural Capacity			N/A	HS-20	HS-20	HS-20
		*Clear Roadway Width (13)			39-6	56'	56'	38' - 40'
	Existing Bridges to Remain in Place	*Structural Capacity			N/A	N/A	HS-20	HS-20
		*Clear Roadway Width			39-6	N/A	(14)	(14)
	*Vertical Clearance (Expressway Under) (15a)	New and Replaced Overpassing Bridges (15b)			39-4	16'-6"	16'-6"	16'-6"
		Existing Overpassing Bridges				N/A	16'-0" (15c)	16'-0" (15c)
		Overhead Signs/ Pedestrian Bridges			33-5	New: 17'-3" (15b) Existing: 16'-9"		
	*Vertical Clearance (Expressway over Railroad)				39-4.06	23'-0"		

*Controlling design criteria (see Section 31-8).

GEOMETRIC DESIGN CRITERIA FOR URBAN EXPRESSWAYS (New Construction /Reconstruction)

Figure 45-4B (US Customary)

The 32' median width is the minimal width required to accommodate dual left turn lanes. In order to conserve right-of-way, the surface drainage will be collected in a closed system using storm sewer and curb and gutter. A 15' flat area will be constructed behind the curb and gutter to allow space for a disabled vehicle to get out of the roadway and a space for snow storage.

1. Proposed Typical Section

The initial typical cross section that was considered for the IL 173 project as part of the IL Route 173 Access Plan included controlling access with a raised median with full access points at ¼ mile locations and partial access points in between at 1/8 mile intervals. The drainage was originally planned to be handled with open roadside ditches.

As the study of IL 173 proceeded, traffic projections dictated the need for a wider typical section. The projections indicate that a four lane cross section will be needed to achieve an adequate level of service. The lane widths will be 12' for through lanes and turn lanes. A 32 foot wide raised median is proposed to accommodate the existing and future traffic for dual left turn lanes at the intersections. The median will be grass, shrubs and small trees as approved by the District Landscape Architect and will be maintained by the local governments. In order to lessen right-of-way needs and environmental impacts, a closed drainage system with curb and gutter has been included with the proposal as well. See the Proposed Typical Sections, Figure 8 in the Appendix.

2. Design Speed

The current IL 173 speed limit is 35 mph from the west limit of the project to Burden Road, 45 mph from Burden to Forest Hills Road, and 55 mph from Forest Hills Road to east of Belvidere Road. Rapid development has been occurring which is changing the corridor from rural to almost urban, a suburban corridor. The suburban design will change the rural, free flow traffic into platooning traffic with signalized intersections at full access points and partial access points in between. For the suburban design, a 45 mph speed limit is proposed to provide a safe, efficient highway.

A. Horizontal Alignment

The proposed horizontal alignment is generally shifted northward so that the proposed eastbound lanes closely match the location of the existing two lane highway. The corridor has a number of existing developments and intersections on the south side, forcing the new alignment north. An additional shift northward was also required to eliminate any impacts on the Rock Cut State Park property. In the area of the IL 251 intersection, the existing developments force the horizontal alignment to be nearly centered on the old alignment. There are slight shifts through this area to accommodate developments on both sides of IL 173. On the east side of I-90, the alignment shifts back to the original centerline to minimize impacts to adjacent properties at the Belvidere Road intersection.

B. Vertical Profile

The proposed vertical profile will remain close to the existing vertical profile except where the existing terrain dictates otherwise. The profile was designed for greater than 50 mph design speeds to maximize sight distance and minimize adverse effects to the adjoining properties. Many alternates were examined with only one profile being the "best fit". The existing terrain at Rock Cut State Park was closely examined to propose a profile that would not impact the park. The proposed profile was revised at the IL 251 intersection to ensure that the inlets were above the high water mark of the Unnamed Tributary and to be compatible with any future upgrades.

3. To Remain in Place Criteria

Due to the rapidly developing corridor, the traffic projections require two lanes in each direction to achieve an adequate level of service. In addition, turn lanes are required at many of the intersections with dual left turn lanes being required at the higher capacity intersections. Any roadway improvement would have to address these concerns which would preclude leaving the existing two lane roadway in place. All of the intersections will be reconstructed to widen the number of through lanes to four and to accommodate the proposed 32' median. Therefore, any option to "remain in place" or "do nothing" is unacceptable.

4. Proposed Access Control

The Illinois Department of Transportation and the Rockford Area Transportation Study recognized the need for access control and developed the IL Route 173 Access Plan in 1994. The Access Plan is included as Figure 24 in the Appendix. With the plan, full access points are established on quarter mile spacing and the partial access points (right-in/right-outs) in between, on eighth mile spacing. This plan will be adhered to with the proposed project and access control documents will be developed. The IL 173 corridor and each access point will be included in the access control plan.

C. No Action Alternate

With the No Action Alternative, already compromised levels of service on IL 173 would continue to deteriorate as traffic volumes increase over time, resulting in localized extensive periods of congestion and delay under design year traffic. Levels of Service on IL 173 would drop further from the current LOS E (near IL 251) and LOS B (at I-90).

Absent the proposed intersection improvements, traffic safety at busy intersections would remain unaddressed: conflicts in turning movements and the stop-start nature of congested traffic flow would continue to be reflected in the type of accidents predominant today – angle, turning and rear-end collisions.

The resulting insufficiency of service to developed commercial and residential properties along IL 173 would have a depressing effect on the local economy. Safety of travel would remain unaddressed. In summary, the consequences of No Action would be:

1. No additional interconnection between these routes on the National Highway System

2. No improved public access to Rock Cut State Park, a regional recreation destination
3. No improved access to Metra commuter rail in Harvard, east via IL 173
4. No improved access to Illinois National Guard 244th Army Liaison Team, west via IL 173
5. No improvement to roadway or intersection capacity and safety deficiencies
6. No correction of IL 173 poor underlying pavement condition
7. No implementation of recommendations for IL 173 in adopted local and regional plans.

For reasons of traffic safety and service, the No Action Alternative was considered to be unacceptable.

D. Widen Existing Footprint

IL 173 is an established highway corridor with constant development taking place. The developments are being constructed around this undersized two lane facility due to its present location and that a full access interchange with I-90 has been proposed. Consideration of a new alignment in a new location would not be a solution to the traffic congestion taking place on IL 173. The traffic can not be diverted because of the large number of trip destinations generated within this corridor. The proposed interchange solidifies the proposal to widen the existing footprint rather than to divert traffic to a new alignment.

E. Description of Intersections

In keeping with the adopted IL 173 Access Plan, restricting full access points to intervals of one-quarter mile will protect roadway capacity for local and inter-regional traffic. All of the access points are proposed to be at-grade intersections and the following table indicates the form of traffic control at each intersection through the project length. Some of the intersections at the western termini of the project will be horizontally realigned. Old Ralston Road, Banyan Drive and North Second Street will be re-configured to provide more efficient traffic flow. A new full intersection will be built extending Burden Road south into the Forest Hills Lodge property, replacing the existing private entrance. Other existing private entrances will be permitted right-in/right-out access points. At 1/8 mile spacings between the proposed full access points, right-in/right-out access points may be permitted from Forest Hills Road through to the east terminus of the project.

Table 3. Illinois 173 Intersecting Roads and Improvements Proposed (Two pages)

Intersecting Roadway	Traffic Control	Turning Lanes IL 173	Turning Lanes Side Road	Horizontal Realignment, Reconstruction, or Other	Level Of Service
Gentian Dr	Stop Sign	No Turn Lanes	No Turn Lanes	Reconstruction	
Norman Ave / Hollybrook Dr	Stop Sign	12' Lt Turn Lanes	No Turn Lanes	Reconstruction	
Smyth Avenue	Stop Sign	12' Lt Turn Lanes	No Turn Lanes	Reconstruction	

Table 3. Illinois 173 Intersecting Roads and Improvements Proposed (Two pages)

Intersecting Roadway	Traffic Control	Turning Lanes IL 173	Turning Lanes Side Road	Horizontal Realignment, Reconstruction, or Other	Level Of Service
Banyan Dr	Stop Sign	12' Lt Turn Lanes	No Turn Lanes	New Construction	
No. Second St	Stop Sign	NA	No Turn Lanes	Realignment	
IL Route 251	Traffic Signals	Dual 12' Lt Turn Lanes Dual 12' Rt Turn Lanes	Dual 12' Lt Turn Lanes Dual 12' Rt Turn Lanes	Reconstruction	D
Orlando St / No. Second St Frontage Road	Traffic Signals	Dual 12' Lt Turn EB 12' Lt Turn Lane WB 12' Rt Turn Lanes	12' Lt Turn Lanes 12' Rt Turn Lane SB	Reconstruction	D
Alpine Rd	Traffic Signals	Dual 12' Lt Turn Lanes 12' Rt Turn Lanes	Dual 12' Lt Turn Lanes 12' Rt Turn Lanes	Reconstruction	D
Continental Dr	Traffic Signals	12' Lt & Rt Turn Lanes	12' Lt Turn Lanes	Reconstruction	
Kimber Dr	Traffic Signals	12' Lt & Rt Turn Lanes	12' Lt Turn Lanes	Reconstruction	
Burden Rd	Traffic Signals	12' Lt Turn EB & WB 12' Rt Turn Lane WB	No Turn Lanes	Reconstruct/New	
Forest Hills Rd	Traffic Signals	12' Lt Turn Lanes 12' Rt Turn Lanes	12' Lt Turn Lanes	Reconstruction	C
Perryville Rd	Traffic Signals	Dual 12' Lt Turn Lanes 12' Rt Turn Lanes	Dual 12' Lt Turn Lanes 12' Rt Turn Lanes	Reconstruction	D
Chandan Blvd	Traffic Signals	Dual 12' Lt Turn Lanes 12' Rt Turn Lanes	Dual 12' Lt Turn Lanes 12' Rt Turn Lane	New Construction by Others	
Mitchell Rd	Traffic Signals	12' Lt Turn Lane 12' Rt Turn Lanes	12' Lt Turn Lane	Reconstruction	B
Park Entrance	Two-Way Stop	12' Lt Turn Lane 12' Rt Turn Lane	12' Lt Turn Lane 12' Rt Turn Lane	Reconstruction	
Belvidere / Argyle Rd	Two-Way Stop	Dual 12' Lt Turn Lanes	12' Lt Turn Lane	Reconstruction	B

V. DESCRIPTION AND ANALYSIS OF ALTERNATIVES STUDIED IN DETAIL

A. Attainment of Purpose and Need

The proposed four lane facility addresses the present and future traffic capacity deficiencies and the high accident locations on IL 173. The proposal fulfills the corridor purposes/needs as outlined earlier in this report.

B. Traffic Service to the Region

The existing two lane facility is a vital link between two NHS routes and is currently operating at a low level of service. The interchange with I-90 is currently under construction and is consistent with the purpose of the NHS to "provide an interconnected system of principle arterial routes". The land near the IL 251 intersection is already heavily developed with developments planned for the rest of the corridor as well. These developments are high traffic generators and require an upgraded highway facility to manage the increased traffic. The four lane proposal with the upgraded intersections has been designed to accommodate the 2025 traffic.

C. Engineering Considerations Including Aesthetics

The projected and current volume of traffic in addition to the high accident locations guided many of the engineering considerations. The number of lanes proposed directly reflects the volume of traffic as well as the number of turn lanes at the intersections. In some cases, dual left turn lanes have been designed to achieve an adequate level of service and the width required for the dual lefts dictates the median width and the need for curb and gutter for delineation. With curb and gutter comes the consideration of a closed drainage system utilizing storm sewer, inlets and outlets.

Shifts in the horizontal alignment and vertical curves were engineering considerations that helped minimize impacts to the existing developments and eliminated impacts to the adjacent state park. The horizontal and vertical alignments were designed for a minimum of 50 mph design speed to increase the safety of the newly constructed facility while minimizing impacts.

As more developments occur and the I-90 interchange is constructed, the Department has considered that the existing highway will become a closed suburban facility with intermittent strip malls and developments with access control and signals spaced according to the Access Control Plan and current design policy. The speed limit will be reduced to 45 mph to accommodate this change in use and to recognize the greatly increased turning movements throughout the corridor.

Although this project is early in the design phase, several aesthetic issues have already been addressed. In the areas where the Tributary to Willow Creek will be realigned, the design of the proposed creek bed will incorporate a series of falls. The local jurisdictions have indicated that they would be responsible for maintaining any vegetation that the Department proposes within the raised median that runs the length of the corridor. Trees that are to be removed may be replaced at a one to one ratio in areas at the discretion of the District's Landscape Architect.

D. Important Social, Economic and Environmental Effects

Noteworthy project environmental impacts are:
The proposal requires 55 acres of new right-of-way, loss of timber, and a general disruption of business during construction.

There are water quality concerns from highway construction activities including erosion and increased sedimentation. These are of particular concern with construction in and along streams or in locations frequently flooded.

To mitigate and prevent erosion and sedimentation, erosion control blankets, temporary ditch checks, temporary erosion control seeding, and perimeter erosion control barriers will be used.

In operation, due to the increased area of impervious pavement and the use of curb, gutter, and storm sewers in the project corridor, the project as proposed will greatly increase the amount of highway storm water runoff, carrying with it vehicle-related pollutants.

The single wetland identified within the limits of proposed project activity will be unavoidably impacted by construction activities at this location. This impact is unavoidable because the wetland is adjacent to the existing roadway and the project involves roadway widening; the wetland is also adjacent to the stream and the project involves relocating the stream. For building the project and accomplishing its drainage goals, there are no practical alternatives to this work in the wetland.

E. Utility Involvements/Drainage Considerations

A Hydraulic analysis has been completed for the IL 173 corridor that can be viewed in the District's Hydraulic Unit. The analysis includes the proposed closed drainage system and the creek realignment.

Preliminary plans for the corridor were sent to the utilities located within the corridor for inclusion in the Department's set of plans. The utility locations can be seen on the plan sheets and will be incorporated into the next phase of engineering for this project.

F. Possible Mitigation Measures

In accordance with IDOT Policy Guidelines, "All trees removed from the project area for construction or maintenance purposes will be replaced with deciduous tree species which are native to the District 2 area. Trees will be replaced according to IDOT Departmental Policy D&E-18 (September 18, 2002). The location of the replacement trees shall be determined by the District 2 Landscape Architect. Some of these replacement trees will be planted at Rock Cut State Park, under the direction of the Site Superintendent."

Tree wells may be utilized to save some of the trees that are within the construction limits. A snow fence is proposed at the state park boundary to keep all construction activity out of the park. Tree trunk protection may also be used to avoid damage to trees during construction.

The proposed raised median will also be the site of vegetation plantings. The Village of Machesney Park has agreed to maintain the landscaping.

An erosion control plan will be developed in the next phase of engineering to minimize impacts to the water quality within the IL 173 corridor. The plan will address erosion and sedimentation and describe specific procedures for reduction.

IDOT has agreed to participate with the DNR in the construction of a bicycle path through Rock Cut State Park. The DNR has provided a basic horizontal layout that will be used as a guide for the proposed path.

One jurisdictional wetland, INHS Site #11 located northwest of the Perryville Road intersection, will be impacted during project construction totaling 0.81 acres of impact. This will be mitigated by purchasing 1.22 acres of wetland bank credits at the Kilbuck Creek Wetland Bank (in the Rock River Basin).

G. Discussion of Costs and Benefits

A preliminary cost estimate has been prepared and is included as Figure 7. A detour route has not been planned for this route since the proposal can be staged two lanes at a time.

The motoring public, the villages and counties and the developers will benefit from the reconstruction of IL 173. Users currently experience stop and go traffic which increases fuel consumption, increases air pollution and adds to driver frustration. The four lane proposal will achieve an adequate level of service which directly correlates to reduced traffic back-ups and congestion.

The highway will become more "user friendly" with turn lanes and signals where needed. Developers are finding this corridor enticing due to the ease that motorists will be able to travel and the villages and counties will increase their tax base as the corridor continues to develop.

There are high accident locations throughout the corridor and the proposal will address these safety issues. Many of the intersections are currently operating at low levels of service which means that they are at or over capacity now. Adding through lanes and turn lanes will increase the volume of traffic that the intersection can safely handle and decrease congestion and frustration making the highway safer.

H. Priority of Implementation

The reconstruction of IL 173 and the interchange at I-90 are high priority projects for the local Metropolitan Planning Organization. Both have been part of the long range improvement plan. The I-90 interchange project is currently under construction. When complete, the interchange will add approximately 1,341 vehicles during the peak hour in the year 2025. IL 173 is currently operating at a low level of service and will be inundated with the additional traffic. Therefore, the IL 173 proposal to increase the number of lanes to four and to increase traffic capacity at the intersections is a priority.

VI. COORDINATION ACTIVITIES

A. Local Governments/Rockford Area Transportation Study

Both an interchange at I-90 and the widening of IL 173 have been proposed in numerous local and regional corridor studies and plans since 1981 (Table 3). The proposed project will provide an interconnected system of arterial routes in a rapidly developing area, will alleviate traffic congestion and improve the safety of operating conditions. By regulating the spacing of intersections and providing adequate turning lanes and traffic controls, the improvements will protect and enhance the capacity of the IL 173 roadway.

These are among the objectives of the IL 173 Access Plan, developed by IDOT with RATS in 1994 in anticipation of the development along this route and approved by the State, Winnebago County, Village of Machesney Park, City of Loves Park and the City of Rockford. A copy of the plan is included as Figure 24. Updated in 2000, the IL Route 173 Access Plan has been reaffirmed by the RATS Policy Committee in 2005.[1] The IL 173 Access Plan covers the area of the present project, from a point west of IL 251 to Belvidere Road, making these logical termini for the project as proposed.

Table 3. Consistency with Local and Regional Plans

Agency	Title
Rockford Area Transportation Study (RATS), with IDOT, municipal and county participants	IL Route 173 Access Plan -- from a point west of IL 251 to Belvidere/Argyle Road
Rockford Area Transportation Study	Long Range Transportation Plans of 1996, 1998 2000, and 2025[2]
Rockford Area Transportation Study and Beloit, Wisconsin MPO	"First Priority I-90 Interchange" agreement
Rockford - Winnebago County Planning Commission	Year 2000 Plan, 1981
Village of Machesney Park	Comprehensive Plan, 1994
Winnebago County	Year 2010 Future Land Use Guide, 1996
City of Loves Park	Loves Park Comprehensive Plan, 1997
Village of Machesney Park	Annexation agreements, 1997 and 1998
Boone and Winnebago Counties	Regional Greenways Plan, 1997
Village of Machesney Park	IL 173 Gateway District Plan, 2003

[1]By motion of the RATS Policy Committee passed July 28, 2005, RATS "reaffirms its endorsement of the Illinois Route 173 Access Plan as originally adopted by the RATS Policy Committee in RATS Resolution 94-11 on October 27, 1994. This reaffirmation will serve as an official amendment to the year 2035 Long Range Transportation Plan." Gary W. McIntyre, RATS Planner, telephone conversation, July 29, 2005.
[2] Ibid.

B. State and Federal Agencies

The planning process of this project has included coordination with the US Army Corps of Engineers, US Environmental Protection Agency, US Fish and Wildlife Service and US Department of Agriculture. The Department of Natural Resources has been very interested in this project with Rock Cut State Park adjacent to the corridor. The DNR is also coordinating with the DOT to ensure that bicycle trails in the Park and along the corridor are compatible. All State and Federal entities were given an opportunity to comment on the Environment Assessment during the comment period as well.

C. Property Owner Correspondence

All of the property owner correspondence can be viewed in Figure 6 of the Appendix. Corridor expansion has been discussed for several years prior to the start of this project and none of the property owners were surprised by the proposal. Some of the main issues that received comments were:

- A bike path proposal at the interchange, through Rock Cut State Park and along the IL 173 corridor.
- Full and partial access along the route and the location of the accesses.
- The environmental consequences of expanding from two lanes to four.
- Complaints that the developers are driving the need for the project because the I-90 interchange will bring economic growth.
- The need for an interchange versus the need for an at grade intersection at the IL 251/IL 173 intersection.

VII. PUBLIC INVOLVEMENT ACTIVITIES

A. Public Informational Open House

A Public Informational Open House for this project was held on June 30, 2004, at the Machesney Park Village Hall. The purpose of the meeting was to provide information about the proposed project and to receive comments from the public. Representatives from IDOT and the consultants were available to answer questions and discuss comments. Attendees were encouraged to provide written comments. Comments and IDOT responses are included in the comment section of the EA and in the correspondence section, Figure 6 of the Appendix. In general, most attendees were either in favor of the project or knew it was inevitable because of the rapidly encroaching development. There was concern about the proposed channel realignment of the Unnamed Tributary to Willow Creek, although the greatest concern was about the portion which will be realigned by the developers. There was a comment about the secondary impacts created by this project which will bring more development into the area and cause the County to build new roads. IDOT responded that this development is already in both Villages and Winnebago County's long range plans, and IDOT is trying to create a safer roadway for the increasing traffic demand caused by this development. There were comments about the detour route for the I-90 interchange project being too long. This proposed route has since been revised and a shorter, more direct route proposed. There was concern about the proposed bike path along the roadway. IDNR suggested that we move the bike path into Rock Cut State Park as soon as it crosses west under I-90. Since this meeting, IDNR has requested in writing to become a cooperating agency. Therefore, the construction of the bike path in the park will be accomplished under a joint agreement between IDNR and IDOT. Figure 6 contains comments and a meeting summary.

B. Public Hearing

Approximately 60 people attended the Public Hearing that was held on September 8, 2005 at the City Hall in Loves Park. The Environmental Assessment document was also available for review at the meeting.

The purpose of the meeting was to provide information about the proposed project and to receive official comments from the public. Representatives from IDOT and the consultants were available to answer questions and discuss comments and a court reporter was available to take down oral comments. Colored displays of the project were hung and property owners were able to see their areas of concern and have their questions answered by the IDOT representatives and the consultant staff.

The majority of the people were in favor of the project. There were several property owners that expressed concerns about their proposed access points. Jody Deery, owner of the Rockford Speedway, was upset about the proposed access to the Speedway and felt they were being overlooked in the proposal. The Department guaranteed Ms. Deery that the concept would be revised to better suit the Speedway's needs and a meeting would be set up to explain the revisions. Mr. Rick Strader for the City of Rockford commented on the bike path along IL 173. He questioned why the bike path on the east side of the proposed interchange did not carry the bike path further than shown. Representatives from the Department explained that there is no anticipated

development of the path along IL 173 east of the interchange and the objective with the proposed interchange project was to carry the path through the interchange and not create a barrier with the interchange. Figure 6 contains comments and a meeting summary.

C. Commitments

No permanent right-of-way acquisition activities, other than approved easements, will take place in Rock Cut State Park.

No project work, including equipment and material storage, driving vehicles and equipment, shall take place beyond the existing IL 173 right-of-way along Rock Cut State Park, except where necessary to construct the bike Path for IDNR.

The Rock Cut State Park boundary/IDOT ROW shall be marked in the field with snow fencing or something similar. This shall be paid for as TEMPOARARY FENCING per Standard Specification Section 201.10(c) (1).

During plan preparation, the trees in front of the park will be reviewed to determine if some type of tree wells or tree root protection should be utilized to protect those trees.

Trees close to the construction limits shall be protected with Tree Trunk Protection per Standard Specification 201.10(c) (1).

All trees removed from the project area for construction or maintenance purposes will be replaced with deciduous tree species which are native to District 2 area.

Trees will be replaced according to IDOT Departmental Policy D&E-18.

The location of the replacement trees shall be determined by the District 2 Landscape Architect.

Some of these replacement trees will be planted at Rock Cut State Park, under the direction of the Site Superintendent.

According to IDOT BDE Procedure Memorandum 99-34 and Operations Policy 5-1800, all unmowed areas should be designated in the plans and seeded with the appropriate native seeding selections from Class 4.

One jurisdictional wetland impacted, located northwest of the Perryville Road intersection, will be mitigated by purchasing 1.22 acres of wetland bank credits at the Kilbuck Creek Wetland Bank (in the Rock River Basin).

The assessment concluded that the Build alternative will involve special waste sites. Sites contaminated with hazardous wastes will be involved. The approved Waiver Request requires that further investigations will be conducted to determine the risks and liabilities of the involvement.

VIII. CONCLUSIONS/RECOMMENDATIONS

A. Recommended Design Alternative

The preferred alternate selected by IDOT includes a horizontal alignment shift and a new vertical profile that matches the existing terrain. The horizontal alignment is nearly centered through the developed section around the IL 251/IL 173 intersection. Throughout the majority of the project the alignment is shifted northward 38'. An additional northward shift is proposed through the Rock Cut State Park area and through the I-90/IL 173 interchange. A shift back to the existing centerline occurs between the I-90 interchange and Belvidere Road.

The proposed vertical alignment remains close to the existing profile with a minimum of 50 mph design speed on the curves.

The proposed cross section consists of two 12' through lanes in each direction separated by a 32' raised median. Right turn lanes will be 12' wide and are proposed as required by the Highway Capacity Manual. Left turn lanes, single and dual, will be constructed as required in the median area. Curb and gutter and a closed drainage system are also proposed for the project with a 15' shelf behind the curb. The 15' shelf is proposed behind the curb and gutter to accommodate snow storage and disabled vehicles and will act as a shoulder in times of accidents as a safe place for emergency and law enforcement responders and vehicles to safely provide support. The raised median is proposed to be turf and landscaped.

B. Supporting Reasons for Alignment Recommendation and Features

The horizontal alignment shifts were proposed to minimize impacts to the existing developments and more importantly, to eliminate any impacts to Rock Cut State Park. An existing cell tower near the eastern termini of the project dictated the placement of the final alignment shift to get back to the existing centerline. This alignment minimizes intersection disruptions and reconstructions and right-of-way impacts to adjacent property owners.

The vertical profile was chosen after the horizontal alignment and was selected through a series of trials. Each proposed profile was better than the previous profile as judged by the width of the construction limits. The vertical constraints were much the same as the horizontal constraints with having to tie in to existing developments and intersections with no impact on the State Park.

C. Discussion of Design Exceptions

The Illinois Department of Transportation has made every reasonable effort to meet the design criteria as outlined in the Bureau of Design and Environment Manual 2002 (BDE 2002), but there are conditions where it is not always practical to meet these criteria. There are two types of design exceptions that have varying levels of importance: Level One and Level Two exceptions. Level One Design Exceptions include criteria this is judged to be those design elements that are the most critical indicators of a highway's safety and its overall serviceability. Level Two Design Exceptions include additional

important indicators of a highway's safety and serviceability but are not considered as critical as the Level One criteria. All of the Design Exceptions are Level Two. Each Design Exception was discussed, evaluated, documented and approved at a District Coordination meeting with the FHWA and the Bureau of Design and Environment Springfield. The Design Exceptions and discussion can be seen in Figure 11.

A very flat grade was used once on the profile of IL 173 and on multiple sideroads. The flat grades were used to tie proposed profiles into existing profiles, and the existing profile grade was the flat grade. In order to construct new pavement, the proposed gradeline must equal the existing gradeline at the tie-in point or a bump will result. These flat grades also make drainage control more difficult requiring less spacing between inlets.

There are two intersections that do not meet Level of Service for the twenty year design. The IL 173 at Orlando Street and the IL 173 at Alpine Road do not meet this Level Two criteria. These areas are heavily developed with tight right-of-way constraints and additional widening is not feasible.

IX. LIST OF FIGURES

1. Location Map/County Map
2. Aerial Mosaics
3. Plan and Profile Sheets
4. IDS Approval Memo, IDS and Projected Traffic
5. Correspondence with Loves Park, Machesney Park, City of Rockford, Winnebago County and Roscoe Township
6. Public Meetings and Property Owner Correspondence
7. Preliminary Cost Estimate
8. Existing and Proposed Typical Sections
9. Accident Analysis
10. Checklist for Bicycle Travel within Highway Projects
11. Bi-Monthly Meeting Minutes and IL 173 Environmental Assessment Approval
12. Categorical Exclusion Group Determination Checksheet
13. Design Report Checklist
14. Cultural Clearance
15. Air Quality Conformity
16. Biological Resource Clearance
17. Hazardous Waste (CERCLIS) Clearance
18. Erosion and Sediment Control Analysis Form (NPDES)
19. Corp of Engineer 404 Permit, IEPA Permit, Office of Water Resources Permit
20. Wetland Mitigation Plan
21. Clearinghouse Review (A-95)
22. Noise Study
23. Commitments and Policy Guidelines
24. IL 173 Access Plan